

**SUBJECT:** SREC Sensitivity Analysis  
**TO:** Arlene Juracek, IPA  
**DATE:** March 29, 2011  
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After the February 24, 2012 meeting at the Bilandic Center, it struck me that a key question in the decision process related to Solar Energy Renewable Energy Certificates (SRECs) was how this fits into an investor's decision process. As the SREC value varies, so does the number of willing investors. I have an Excel-based model that allowed me to look at discounted cash flow profiles as a function of two key variables:

1. SREC value (i.e. \$/MW-hr generated)
2. Length the SREC value applies (5 years or 10 years)

Two scenarios were investigated, one for a **residential** investor and the other for a **business** investor. A third scenario could be modeled, for a non-profit or a community, but the values are very close to those of the residential scenario, based on no federal tax credits or depreciation, 50% state grants. The input assumptions applied are shown in the table to the right.

The model takes the Illinois 30% grant off the initial total installed cost and then applies a 30% tax credit on the balance. For the business case, a 5-year accelerated depreciation schedule is applied. Net metering applies in all cases.

Presented below are four graphs of the cumulative cash flow for SREC values

of 0, \$20, \$50, \$100, \$200 and \$300 for the scenarios described above, as follows

1. Residential Investment, SRECs for ten year period following initial operation
2. Residential Investment, SRECs for five year period following initial operation
3. Business Investment, SRECs for ten year period following initial operation
4. Business Investment, SRECs for five year period following initial operation

As the thinking into the rates moves forward, I just want to be sure that the rates, if set, will actually have a chance to motivate a new group of investors. As an example, if a typical target were to be set to reach positive cash flow in less than 10 years, then based on this analysis, the residential investor would likely be interested in the \$200 to \$300 range, if SRECs were provided over ten years or at least \$300 if only provided for 5 years. For the business case, the 10-year goal is not as sensitive to the SRECs as the residential case, as the businesses get to depreciation and this reduces the upfront costs. Note, if the size of the investment changes, the cash flow time profile looks the same in terms of years to positive cash flow. Another sensitive variable that changes the profile is the Cost per Watt DC. Comments welcome.

INPUT ASSUMPTIONS	USED
<b>SIZING</b>	
System Size: kW DC	48.6
Derate Factor (losses)	82%
System Power Output, kW AC	39.9
Average Peak Sun Hours/Day Basis	4.40
Estimated Annual Power Output, MWhr/year 1	62.72
<b>COSTS</b>	
Cost per kW dc	\$ 4,500
Total Installed Cost	\$ 218,700
<b>ELECTRIC RATE</b>	
First year electric retail rate, \$/kWhr	\$ 0.13
<b>SRECs</b>	
SREC RATE, \$/MWhr	\$ 300
SREC Escalation Factor	0%
Years SREC Applies	10
<b>FACTORS</b>	
Discount Rate	5%
Electrical Cost Inflation	3%
Grants and Tax Credits Applied over years	1
Years depreciation (accelerated)	5
<b>TAX RATES</b>	
Federal Tax Rate, %	35%
State Tax Rate, %	7%
<b>SITE FACTORS</b>	
Obstacle shade losses	2%
Snow losses	0%
<b>GRANT PERCENTAGES</b>	
State Grant %, for Profits	30%
State Grant %, for Non- Profits	50%



